

images.

Materials and methods

Sixteen cases were studied in the Department of Radiol., Kyushu Univ., from December 1972 to July 1974. Of 16 cases, 7 were proved histologically and 9 were unverified.

Adrenal scintigraphy was performed after the intravenous administration of 400—900 μ Ci of ^{131}I -cholesterol.

Scintigrams obtained 8 days following the administration were evaluated for adrenal images.

The scintigraphic findings were classified according to grade of radionuclide accumulation as follows; markedly positive (2+), positive (+), slightly positive (\pm), and negative (—).

Computer analysis of radionuclide accumulation in adrenals was performed by TOSHIBA Gamma Camera GCA-102, equipped with TOSBAC-40, and these results were correlated with the scintigraphic images.

Results

On 7 cases proven histologically, 6 cases including 4 primary aldosteronism due to adenoma and 2 Cushing syndrome due to adenoma, were correctly diagnosed by this method preoperatively. These 6 lesions showed markedly positive images.

Involved / Background-ratio and High / Low-ratio were over 4.0, and 1.6, respectively.

On the other hand, 2 cases with essential hypertension showed positive (+) adrenal images. Adrenal / Background and High / Low-ratio were below 2.6 and 1.2, respectively.

As for scintigraphic images of uninvolved side, 2 cases of primary aldosteronism showed positive (+), but the other 2 were negative, and also 2 Cushing syndrome due to adenoma were negative.

Conclusion

Adrenal scintigraphy by ^{131}I -cholesterol is a useful method for a preoperative detection of adrenal lesions.

Computer analysis used in this study adds more accuracy for the diagnosis of adrenal lesions.

Clinical Evaluation of Adrenal Scintigraphy Using I-131-19-Iodocholesterol

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The purpose of this study is to evaluate the diagnostic value of an adrenal scintigraphy using I-131 cholesterol.

Material and method: 31 subjects were studied including 5 controls, 11 patients of lung cancer with normal adrenal function, 6 patients with primary aldosteronism, 2 patients with

secondary aldosteronism, 3 with Cushing's syndrome, 3 with adrenogenital syndrome and 1 with metastatic adrenal tumor. The patients were examined in a sitting position with the scintillation camera. In 6-8 days after the intravenous administration of a dose of 1 m Ci of I-131 cholesterol, the patient's adrenal glands

were imaged with a scintillation camera.

Results: In 5 normal cases, slightly positive images were seen bilaterally. In some patients of lung cancer with normal adrenal function, moderately positive bilateral images were obtained, which could not be differentiated from adrenal hyperlasia. In the cases of adrenal adenoma, whether it was Cushing's syndrome or primary aldosteronism, markedly positive images were seen on the side of the adenoma, but negative or slightly positive images on the other side.

Characteristic unilateral positive images str-

ongly suggest that it could be adrenal adenoma. In 8 cases of adrenal hyperplasia, however, enlarged positive images were seen bilaterally in 5 cases, and also moderately positive in 3 cases. These could not be differentiated from normal cases. In a case of the follow up study of lung cancer, a negative adrenal image on the left side was observed, which had been positive 6 months before. This was later confirmed by autopsy. A metastatic adrenal tumor could be suggested by the process of decreasing radioactivity of I-19-Iodocholesterol.

Pancreatic Scintiphotography in Diabetes Mellitus

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The pancreatic scintiphotography was performed in 108 cases of patients with diabetes mellitus. Scintiphotos were taken at 40 min after intravenous injection of approximately 200 μCi of ^{75}Se -selenomethionine using by Toshiba gamma camera. The relationships between the degree of pancreatic uptake of ^{75}Se -selenomethionine and the types and duration of diabetes, vascular complications and the average ranges of fasting blood sugar levels were studied. In some cases, pancreatic scintiphotos were taken at 10, 30 and 50 min. after injection of ^{75}Se -selenomethionine, and the degrees of the pancreatic uptake were compared on each time course. Following results were obtained. (1) Only two out of 24 cases of insulin-dependent diabetics showed normal pancreatic scintiphotos. On the other hand, two out of 47 cases of mild diabetics

treated with diet alone showed no uptake in pancreatic scintiphotos. (2) There was a tendency to show abnormal pancreatic scintiphotos in diabetics of the longer duration of disease. Especially, in 15 cases who had diabetes for more than eleven years, only one case showed normal pancreatic scintiphoto. (3) Abnormal pancreatic scintiphotos were found more frequently in the group of poorly controlled diabetics than in the group of well controlled diabetics. (4) No correlation was found between the uptake of the pancreatic scintiphotos and the presence or absence of the history of drinking and obesity. (5) In cases showing normal pancreatic scintiphotos, diabetic retinopathy was less frequently found. (6) Out of 36 cases of sequential pancreatic scintiphotos, longer diabetic durations, hypertension and arteriosclerosis were found more frequently in